PERISCOPE.

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PHYSIOLOGY OF THE NERVOUS SYSTEM.

BINET AND FÉRÉ ON THE PHYSIOLOGY OF MOVEMENTS AMONGST HYSTERICAL PERSONS.

The researches in this paper have been chiefly carried out on three points ;—1. Cataleptic plasticity of the waking state ; 2. Involuntary and unconscious movements ; 3. Voluntary movements.

1. *Cataleptic Plasticity.*—This phenomenon is produced in hysterical subjects, who present anæsthesia of the skin and muscular sense. The eyes are bandaged, the anæsthetic member is raised, the subject, who has lost the consciousness of passive movement, being unaware of it ; in the majority of cases member drops. In other cases, however, it remains in the position in which it has been placed. The chief characters of the phenomenon are as follows :—(1) The duration of the position is extremely lengthy ; in one instance the right arm was horizontally extended, and the fore-arm slightly flexed. They remained in this position for an hour and twenty minutes. (2) There is a complete absence of trembling in the member. (3) Fatigue is absent. (4) The plasticity of the members does not entirely suspend voluntary movements. (5) After the member has dropped there is no evidence of paralysis ; in fact, in one case, the dynamometer gave a higher figure after than before the experiment. When the conditions under which these phenomena take place are examined, it is found that they are always accompanied by superficial and deep

anæsthesia, or sometimes only by the superficial form. Anæsthesia to fatigue is also a necessary condition. Closure of the eyes is not essential. It is interesting to remark that subjects of this kind are able voluntarily to extend the anæsthetic member during a much longer period than the normal member. Temporary disappearance of the anæsthetic suppresses completely in that part of the body the power of preserving voluntarily a position during a considerable time.

2. *Unconscious Movements.*—These movements were observed in eight out of sixteen patients who were experimented upon. The seat of the movements is in those parts of the body which are anæsthetic. We may classify the results obtained under various headings.

Repetition of a Passive Movement.—The eyes of the subject are bandaged, and the anæsthetic arm is caused to execute rapidly or gently a regular movement. In the midst of its course the limb is suddenly abandoned, when the movement is seen to continue during a certain time, which varies in different individuals. The same result may be produced by *faradic* contraction, and also as the sequence of a *reflex* movement.

Repetition of a Graphic Movement.—In this case a pencil is placed in the hand of the patient, which is caused by the operator to execute some movement, such for instance, as one of a circular nature. Whilst this is being done the hand of the patient is observed not to be completely passive. The passive movement having been communicated, the hand of the patient is released, the point of the pencil being left on the paper. In one group of cases the hand at once falls to the side, in a second the hand still holds the pencil as if about to write, but nothing more than a slight trembling occurs. In a third group of cases, however, the hand continues to execute the movement which has been communicated to it for a period, which has been known to extend to a quarter of an hour. Complicated words, composed of five or six letters, are sometimes reproduced with exactitude.

Repetition of a Voluntary Movement.—This occurs notably in movements of writing. The patient, having voluntarily written with opened or closed eyes the same letter several times in succession. is told to stop. He believes that he has stopped, but the hand continues to write the same letter. A facsimile of a letter written by a patient is given, in which it is obvious that she was obliged, in spite of herself, through a kind of stammering of the hand, to write several times in succession the same letter.

Association of Unconscious Movements.—An unconscious movement determined by the observer may produce a second unconscious movement with which it has been generally associated; thus, for instance, when a perfectly anæsthetic subject, who is seated with closed eyes, is taken by the arm, he may be caused to rise by the associated movement in the lower extremities.

Unconscious Movements of Adaptation.—These may also be produced in hysteric subjects.

Unconscious Rendering of a State of Consciousness.—It often happens that when a patient whose eyes are closed is told to think of a figure or a word, the anæsthetic hand which holds a pencil traces unconsciously the figure or word which is in the mind.

Spontaneity of Unconscious Movements.—It has been a question as to whether the unconscious movements are simply the manifestations of an unconscious memory, or if other functions, reason, for example, may intervene sometimes in the operation. The experiment was made of causing a patient to write his own name misspelt. In some cases the unconscious repetition corrects the error; in others it is allowed to remain incorrect. The most striking effect in connection with all these manifestations is that the hysterical anæsthesia is nothing less than an anæsthesia. The patients on whom these observations were made have all lost the consciousness of the passive movements, but only the consciousness; the physiological process of sensation is preserved. The unconscious sensation is registered in the nervous centres of the patient, and thus the same movement is unconsciously reproduced. Without being infalible the unconscious perception of the hysterical person appears to be much more exact than the conscious perception of the normal individual. If the hand of the subject is touched during the writing it will be perceived to be extremely rigid, and any attempt to stop the movement meets with considerable resistance. The will of the patient has also no effect on the movement. Whilst the passive movement is in progress the patient may be permitted to open his eyes. He is then much surprised at seeing his members in movement, and his surprise is increased when he observes that he is incapable of stopping the movements whose cause he does not understand. When the patient in the course of a passive movement, is asked to write a second word, a curious mixture of the two words is produced. The authors offer the following interpretation of the preceding observations. They seem to prove that there exists in certain hysterical persons in a waking state a doubling of the personality, which is not successive but simultaneous, both being *en rapport* with the operator, but in different ways. The prinpersonality, which is that which everybody knows, communicates by a word or by voluntary movements ; the second personality, which is more or less rudimentary, communitates with the experimenter principally by movements of the anæsthetic side.

Amongst certain hemi-anæsthetic or completely anæsthetic subjects, every motor phenomenon provoked in one-half of the body produces an analogous but feeble phenomenon localized in the corresponding portion of the opposite side. In the case of a contraction, for instance, a short interval exists between the movements of the two sides. The indirect contraction is generally more feeble, is sometimes incomplete, and occasionally a prolonged excitation of the one side is necessary to produce an action in the opposite. Faradic contractions, reflex, passive, and active movements, may also become unilateral. Paralyses are an exception to the rule which governs all these bilateral motor phenomena. Instead of a paralysis suddenly provoked being produced on the opposite side, an accession of force as shown by the dynamometer is the result.

3. *Voluntary Movements.*—The majority of hysterical subjects who have lost superficial and deep sensibility preserve the faculty of coördinating the movements writing with their eyes closed. Those whose insensibility is profound agreeing in saying that they do not feel themselves write. They almost all concur in stating that they see themselves writing. Some patients, and these form the majority, are incapable of writing exactly a letter any given number of times ; they either write it too often or too seldom. Others, on the contrary, obtain the exact number. It appears that both these classes and especially the former write chiefly under the guidance of their visual memory.—*London Medical Record.* L. F. B.

THERAPEUTICS OF THE NERVOUS SYSTEM.

CASCARA SAGRADA IN RHEUMATISM.

The effect of cascara sagrada in rheumatism I discovered by accident. About three months ago I was attacked with severe rheumatic pains in my shoulder, the slightest motion causing intense pain. The third day of the attack I commenced taking as a laxative ten drops of the cascara, t. i. d. The first morning after taking it the pains were so much less severe that I could move my arm freely. The day following I was entirely free of all discomfort.

Although, as I have intimated, I had not taken the cascara with any idea of relieving the rheumatism, it occurred to me a few days later that possibly the sudden subsidence of pain might have been due to the drug. There being a few cases of rheumatism in the wards, I determined to try to verify my suspicions. Discontinuing the salicylates, iodides, etc., which these patients were taking, I substituted ext. cascaræ sagradæ fl., 1 c. c., t. i. d. The result astonished me. Within twenty-four hours there was marked improvement in every case. One case is especially worthy of notice. The patient was a Swedish sailor who